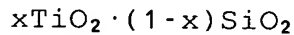


CLAIMS

1. A crystalline MWW-type titanosilicate catalyst for producing an oxidized compound, which is usable in producing an oxidized compound by an oxidation reaction of a compound having a carbon-carbon double bond and at least one other functional group wherein the carbon-carbon double bond of the compound is oxidized by using a peroxide as an oxidizing agent; the catalyst having an MWW structure and being represented by the following composition formula (1):

Composition formula (1)

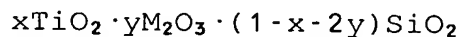


wherein x is a number of 0.0001 to 0.2.

2. A crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 1, wherein x is a number of 0.005 to 0.2.

3. A crystalline MWW-type titanosilicate catalyst for producing an oxidized compound, which is usable in producing an oxidized compound by an oxidation reaction of a compound having a carbon-carbon double bond and at least one other functional group wherein the carbon-carbon double bond of the compound is oxidized by using a peroxide as an oxidizing agent; the catalyst having an MWW structure and being represented by the following composition formula (2):

Composition formula (2)



wherein M represents at least one element selected from the group consisting of aluminum, boron, chromium, gallium and iron, x is a number of 0.0001 to 0.2 and y is a number of 0.0001 to 0.1.

4. A crystalline MWW-type titanosilicate catalyst

for providing an oxidized compound according to claim 3, wherein M in the composition formula (2) is boron.

5 5. A crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 3, wherein x is a number from 0.005 to 0.2.

6. A crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 3, wherein y is a number from 0.0001 to 0.05.

10 7. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 1, said production process comprising:

 a first step of heating a mixture comprising a template compound, a titanium-containing
15 compound, a boron-containing compound, a silicon-containing compound and water, to thereby obtain a precursor; and

 a second step of calcining the precursor obtained in the first step, to thereby obtain a
20 crystalline titanosilicate.

8. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 7, wherein the template compound is a nitrogen-containing compound.

25 9. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 8, wherein the nitrogen-containing compound is at least one compound selected from the group consisting of piperidine,
30 hexamethyleneimine and a mixture thereof.

10. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized

compound according to claim 7, wherein the titanium-containing compound is at least one compound selected from the group consisting of titanium oxide, titanium halide and tetraalkyl orthotitanates.

5 11. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 7, wherein the boron-containing compound is at least one compound selected from the group consisting of boric acid, boric acid
10 salt, boron oxide, boron halide and trialkylborons.

 12. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 7, wherein the silicon-containing compound is at least one compound selected
15 from the group consisting of silicic acid, silicic acid salt, silicon oxide, silicon halide, fumed silicas, tetraalkylorthosilicates and colloidal silica.

 13. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized
20 compound according to claim 7, wherein the ratio between titanium and silicon in the mixture to be used in the first step is 0.001 to 0.3 : 1 (titanium : silicon) in terms of the molar ratio therebetween.

 14. A process for producing a crystalline MWW-type
25 titanosilicate catalyst for providing an oxidized compound according to claim 7, wherein the ratio between boron and silicon in the mixture to be used in the first step is 0.3 to 10 : 1 (boron : silicon) in terms of the molar ratio therebetween.

30 15. A process for producing a crystalline MWW-type titanosilicate catalyst for providing an oxidized compound according to claim 7, wherein the ratio between

water and silicon in the mixture to be used in the first step is 5 to 200 : 1 (water : silicon) in terms of the molar ratio therebetween.

5 16. A process for producing a crystalline MWW-type
titanosilicate catalyst for providing an oxidized
compound according to claim 7, wherein the ratio between
the template compound and silicon in the mixture to be
used in the first step is 0.1 to 5 : 1 (template
compound : silicon) in terms of the molar ratio
10 therebetween.

17. A process for producing a crystalline MWW-type
titanosilicate catalyst for providing an oxidized
compound according to claim 7, wherein the heating
temperature in the first step is in the range from 110
15 to 200°C.

18. A process for producing a crystalline MWW-type
titanosilicate catalyst for providing an oxidized
compound according to claim 7, wherein the calcining
temperature in the second step is in the range from 200
20 to 700°C.

19. A process for producing a crystalline MWW-type
titanosilicate catalyst for providing an oxidized
compound according to claim 7, wherein the precursor
obtained in the first step is contacted with an acid,
25 and thereafter the second step is performed.